

# measure bulletin

Newsletter for the customers of Labkotec Oy

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## Efficient ice detection



## Labkotec's Ice Detectors

enhance weather observation at airports.

Labkotec Ltd has introduced a new generation LID Ice Detector.



Airports are open places that are exposed to strong winds. Weather conditions there may change extremely rapidly. In particular airports located close to open sea areas have been in need of ways to anticipate icy fog or drizzle in order to protect aircraft more efficiently. Finavia has purchased Labkotec's LID ice detectors for six airports. The detectors, which were originally developed for wind turbines, have been tested in airport and laboratory conditions. The equipment was commissioned in October 2007.

### More accurate information on flight weather

The detector acquisition is connected to a renewal of the operating environment for air traffic control. The measures aim to increase the efficiency of air navigation services by, for example, providing more accurate information on flight weather. In addition to reliability and safety, the goals include ensuring the unambiguity of the available information.

"Icy fog or drizzle quickly forms a thin layer of ice on the wings or other surfaces of aircraft. Ice detectors are used to indicate this hazard in advance as accurately as possible. Even if the temperature at the airport is above zero, icy drizzle may occur at relatively low altitudes. This type of

rain is extremely fine, almost fog-like. Earlier detectors have not been able to pick it up with adequate reliability," explains Matti Eteläpää, administrator of weather observation systems at Finavia.

"With this new method, we can obtain direct information instead of interpreting weather conditions indirectly. This is necessary because weather conditions may change very rapidly. I believe that we can now provide the pre-flight information service with basic information, forecasts and warnings faster than before. When a risk is detected, the ice detectors display warnings in the form of flashing snowflakes in the air traffic control monitors and FZ (freezing) indications in the flight weather data. The new method is used specifically for flight weather observation. The information it provides serves the entire chain from air traffic control to pre-flight information services."

### The wind turbine tests lent the detectors credibility

Mr Eteläpää finds that the current sensor type used in the Labkotec ice detectors suits Finavia's needs extremely well. The detectors were tested over several months at the Kruunupy Airport between Kokkola and Pietarsaari. This airport is in a challenging location in terms of weather because, in winter, the line between fast ice and open sea runs just above the nearby Kvarken sea area.

Moreover, the warm air mass that passes over the Scandinavian Mountains on its way from the Atlantic collides with the humid air above the Bothnian Bay causing icy fog or drizzle.

"The wind turbine tests were a good precedent. They lent the equipment more credibility in terms of their suitability for our applications. In addition, Finavia's own test results yielded useful indications for developing the equipment further. Airports are windy places. What we have now is an ice detector that is well suited to windy conditions. The assembly includes a sensor and a central processing unit. Due to the conditions, data transfer is handled by means of relay traffic."

"Usually, we are after the best price-quality ratio," says Eteläpää. "The installation work of the new equipment is already complete, and the commissioning took place in October 2007."

Eteläpää has great expectations for the LID ice detectors, as there are numerous airports in Finland that are located in close proximity to the coast. Some detector assemblies have been installed at inland airports with civilian and air force traffic.